REMARKS

In response to the Official Action mailed February 5, 2003, Applicants amend their application and request reconsideration. In this Amendment claims 4 and 13 are cancelled leaving claims 1-3, 5-12, and 14-20 pending.

The invention concerns a color plasma display panel in which the differing efficiencies of light emission of respective colors is compensated. In the plasma display panel defined by amended claim 1, which incorporates the limitation of original claim 4, the areas of first, second, and third transparent electrodes are varied in accordance with the ratios of efficiencies of light emission by the different fluorescent substances that produce red, green, and blue light, to balance the brightness of each color from each pixel. Although not specified in amended claim 1, it is known in the art that blue light is the least efficiently produced light, i.e., the dimmest, and that red light is the brightest of the three colors of light produced. As expressed in amended claim 5, the areas of the three transparent electrodes are made inversely proportional to the light radiation efficiency ratios to provide light of relatively uniform intensity, regardless of color, from each pixel.

Figure 3 illustrates such a variation in the transparent electrode areas. The three transparent electrodes 23, 24, and 25 have increasing areas because they respectively are located at red, green, and blue discharge cells. As indicated in that Figure 3, the total area occupied by each cell, including the active area where the fluorescent substance is disposed and the partition walls, is essentially uniform with regard to each cell, regardless of color. However, the area of the transparent electrodes is not uniform for each discharge cell but varies significantly with the color of light produced by the fluorescent substance of the respective discharge cell.

The plasma display panel defined by amended claim 12, which incorporates the limitation of examined claim 13, provides compensation for the different color light efficiencies by adjusting the areas of the respective discharge cells in a particular way. Each discharge cell of the plasma display panel of claim 12 is defined by four partition walls. Two of those partition walls are main partition walls that are parallel to each other and are of uniform width. The other partition walls are auxiliary partition walls that are transverse to the main partition walls. Each of the auxiliary partition walls is uniform in width, but different auxiliary partition walls have different widths. Thus, the area within a particular discharge cell can be increased by using at least one relatively narrow auxiliary partition wall. The area of a discharge cell can be decreased, for example a cell producing red light, by using at least one relatively wide auxiliary partition wall. This technique of defining different areas

of discharge cells assists in making the overall areas of each of the discharge cells relatively uniform. The size uniformity is of substantial assistance in mass production of the plasma display panels.

An example of varying auxiliary partition wall widths is depicted in Figure 2 of the patent application. It is apparent in the embodiment of Figure 2, as in the embodiment of Figure 3, that the relative area occupied by each discharge cell, including the adjacent, defining main partition walls and auxiliary partition walls, is relatively uniform. However, the active part of each discharge cell in which the fluorescent substance is disposed is changed in size by the auxiliary partition walls that partially define the cell. As shown in Figure 2, the cell producing green light, i.e., the G cell, is bounded by two auxiliary partition walls 33 having an intermediate width T3, that is intermediate to widths of two other auxiliary partition wall widths. The active area of the discharge cell producing the red light is bounded by two auxiliary partition walls 34 having relatively wide widths T2. Thus, the active area of the discharge cell producing red light, i.e., including the corresponding fluorescent substance, is smaller than the active area of the fluorescent substance producing green light. The area of the fluorescent substance in the discharge cell producing blue light is made the largest of the three active areas by providing the narrowest of the auxiliary partition walls, having a width T1 as at least one of the walls 32 of the blue cell. This particular arrangement illustrated in Figure 2 is not the only arrangement within the scope of amended claim 12 that may be used to adjust the relative active areas of the discharge cells, with respect to the intensity of light produced according to light color, but is only exemplary.

All examined claims were rejected as unpatentable over Asano et al. (U.S. Patent 6,008,582, hereinafter Asano) in view of Komaki (U.S. Patent 5,587,624, and further in view of Shiiki et al U.S. Patent 6,411,032, hereinafter Shiiki). This rejection is respectfully traversed as to the claims now pending.

The two pending independent claims are claims 1 and 12. Those claims respectively incorporate the limitations of examined claims 4 and 13 and other changes. Thus, no claim now pending is identical to any examined claim.

The amendments of claims 1 and 12, as well as the other claim amendments, most of which are clarifying in nature, are all supported by the application as filed. For example, the application discloses and shows in Figures 1-3 that each discharge cell is surrounded by four walls and is not defined solely by parallel main partition walls 31, referring to the embodiment of Figure 1. Further, as shown in the patent application, each of the partition walls, whether it be a main partition wall or an auxiliary partition wall, has a uniform width. As explained in the patent application and in some of the claims, the widths of the auxiliary

partition walls are not the same from wall to wall, although the widths are uniform within any particular auxiliary or main partition wall.

A plasma display panel according to claim 1 includes as an important feature that the areas of the respective first, second, and third transparent electrodes, that are opposite and produce or sustain discharges within respective discharge cells producing red, green, and blue light, differ in area in accordance with the ratios of efficiencies of emission of the respective different colors of light.

In the rejection, the basic features of a plasma display panel were asserted to be described by Asano. Applicants agree that Asano discloses a plasma display panel including front and rear substrates, parallel main partition walls, address electrodes, and discharge maintenance electrodes, as in the structure of claim 1. However, the other features of claim 1 are not disclosed in Asano, as acknowledged by the Examiner.

In rejecting examined claim 4, reliance was placed upon Komaki and its Figures 6a, 6b, 7a, and 7b as disclosing transparent electrodes having varying areas at different parts of the plasma display panel. According to the description in Komaki at column 3, lines 52-60 and column 4, lines 16-20, what is shown in these four figures is that sustaining electrodes have a larger area in central portions of the plasma display panel and smaller areas in peripheral portions of the display panel. The reasons the electrodes have two different areas depending upon the region of the plasma display panel in which the electrodes are located is to compensate for mechanical deflection of the substrates of the plasma display panel. This mechanical deflection results in displacement of the transparent electrodes. This displacement, as explained in Komaki at column 1, lines 44-50, can adversely affect the luminance increase intended to be produced by projections 5 formed on those electrodes 1 and 2. The ribs on the substrates mechanically deflect, along with the substrates, potentially blocking the area of the projections 5 of the electrodes. This deflection of the substrates is more likely to occur in central regions of the substrates rather than in peripheral regions because of the way the substrates are joined to each other. That joining is at the edges of the substrates so that the edges of the substrates cannot deflect but remain at a uniform separation. By providing larger area sustaining electrodes at the central part of the plasma display panel, Komaki compensates for substrate deflection.

There is no relationship described or suggested in Komaki between the area of particular electrode projections and the color of light produced or the efficiency of producing light of different colors in the plasma display panel. In fact, Komaki makes no reference to producing a color image on a plasma display panel.

Shiiki was cited in the rejection of claim 4 with respect to Shiiki's Figures 1-3. Those figures show, in respective end views, barrier ribs disposed on a substrate of a plasma display panel. The regions between adjacent pairs of barrier ribs are coated with phosphors and the pitch between adjacent pairs of barrier ribs varies depending upon the color of light produced by the respective phosphors between respective adjacent pairs of barrier ribs. According to Shiiki, when the barrier ribs are uniformly spaced from each other, it is not possible to adjust the respective luminances of red, green, and blue light produced by the plasma display. Shiiki resolves this issue by providing for non-uniform spacing between the pairs of barrier ribs according to the color produced by the respective phosphors between the respective pairs of barrier ribs.

According to the Official Action, it would have been obvious to have varied the areas of transparent electrodes as in Komaki to take account of the different luminances of phosphors, i.e., fluorescent substances, producing light of respective, different colors, as in Shiiki. Applicants respectfully disagree.

The problems solved in Komaki and Shiiki are so different that one of skill in the art, without knowledge of the present invention, would not be led to modify Komaki with any teaching of Shiiki. Komaki's teaching is strictly limited to varying the areas of transparent electrodes with respect to position in a plasma display panel. This variation with position obviously has nothing to do with the color of light produced within each pixel of a plasma display panel. The pixels produce light of to three different colors and are uniformly distributed over the surface of a plasma display panel. Varying the luminance of pixels solely based upon the relative location of the pixel in the plasma display panel does not relate to the color of light produced by a particular pixel. In fact, the teaching of Komaki is contrary to the idea of locally adjusting within each pixel the luminance of the light produced, depending upon the color of the light.

Shiiki has nothing to do with electrode area. Shiiki does describe varying some structure of a plasma display based, upon the efficiency of light-producing phosphors, according to the color of the light. However, there is no bridge or suggestion within Shiiki that a different solution to the problem of luminance as a function of color might be possible. At best, Shiiki states the problem solved by the invention as defined by amended claim 1 and its dependent claims. The statement of the problem, is in this instance, not any suggestion of its solution. In fact, even with both Komaki and Shiiki in hand, there is no suggestion for modifying transparent electrodes to achieve a solution to the problem that is solved by Shiiki in an entirely different way from the invention. The only basis for finding a suggestion for the invention, since the solution is not present in any disclosure of either Komaki or Shiiki, is

amended claim 1 itself. Reliance upon a claimed invention to demonstrate its own obviousness, i.e., hindsight reconstruction to establish *prima facie* obviousness, is prohibited. Accordingly, the rejection is erroneous with respect to amended claim 1 and cannot be properly maintained. For the same reason, the rejections of claims 2, 3, and 5-11, all of which depend directly or indirectly from amended claim 1, cannot be properly maintained.

With regard to the dependent claims depending from claim 1, Applicants particularly point out that there is no suggestion in any of the three references applied in rejecting the claims for the ratio of areas specified in claim 7. The basis for this ratio is stated in the patent application and there is no statement in the Official Action as to why this particular relationship would have been obvious in view of the asserted references. Further, as discussed below in connection with amended claim 12 and its dependent claims, the three patents applied in rejecting the claims do not disclose or suggest the limitations of claims 8-11. For the same reason that amended claim 12 cannot be rejected based on those patents, neither can the rejection of claims 8-11, regardless of the propriety of the rejection of amended claim 1.

In the plasma display panel of amended claim 12, the different width auxiliary partition walls joining the main partition walls determine the size of respective active areas of discharge cells with the respective fluorescent substances in the cells. As understood, the rejection of amended claim 12, which incorporates the limitation of examined claim 13, is founded upon the assertion that the partition walls 1a, 1b, and 1c shown in Figures 11-13 of Asano allegedly have non-uniform widths.[1] In discussing the rejection of claim 12, the Examiner also cited Figures 6a and 6b of Komaki. However, Komaki has no relationship to claim 12. It is assumed that the reference to Komaki relates to claims 16-20, claims that can only be properly rejected once claim 12 has been shown to be obvious. That showing has not yet been made.

Apparently Shiiki was relied upon for the remainder of claim 12, based upon the first paragraph at page 5 of the Official Action. The limitation of claim 13, now introduced into amended claim 12, was dismissed at page 7 of the Official Action as a routine variation by one of ordinary skill in the art. In other words, the basis of the ultimate rejection with regard to amended claim 12 is the long-discredited "design choice". By defaulting to such a rejection, the Examiner has acknowledged that all of the limitations of amended claim 12 are not disclosed in the prior art, so that *prima facie* obviousness has not been demonstrated. For

[1] The discussion at page 3 of the Official Action concerning the trapezoidal cross-section or other cross-section of the partition walls in Asano is not understood since there is no claim limitation of any examined claim relating to the cross-sectional shape of the partition walls.

that reason alone, the rejection of amended claim 12 and its dependent claims 14-20 cannot be properly maintained.

There is an important element of claim 12 that has been misinterpreted in applying Asano. The language has now been clarified, although not changed in substance. Applicant readily agrees that at least in Figures 11 and 12 of Asano, the partition walls are of non-uniform thicknesses because of corrugations or recesses in the walls. The partition wall in Figure 13 of Asano is different because the width of that partition wall is uniform, although the width includes two steps. What Figures 11 and 12 of Asano demonstrate is that in each of Asano's plasma display panels, each of the partition walls is identical to each of the other partition walls.

What was described in the patent application and claimed was not that each auxiliary partition walls was of non-uniform width, but that respective auxiliary partition walls have different, respective uniform widths. While the widths may vary in the partition walls shown in Figures 11 and 12 of Asano, the partition walls, partition wall-to-partition wall, are identical. That teaching is clearly outside what is claimed in amended claim 12 and its dependent claims. In claim 12, all partition walls are uniform within each partition wall. However, the auxiliary partition walls have various uniform widths. None of the partition walls of Figures 11-13 of Asano are of different widths and none can be used to provide discharge cells with different active areas as a result of the partition walls having different widths. Different cell areas might be achieved by arranging the partition walls at different spacings, the teaching of Shiiki, but that suggestion is not the claimed invention.

Like Asano, in describing different spacings between pairs of barrier ribs, Shiiki uses barrier ribs of uniform size and shape. Thus, neither Asano nor Shiiki can suggest the arrangement of the plasma display panel of claim 12 in which the auxiliary partition walls have varying widths to control the areas of discharge cells. An entirely different approach is taken by Shiiki. Asano never suggests that different discharge cells should or can have different areas. Komaki is simply irrelevant to any limitation of claim 12 or of its dependent claims 14 and 15. Claim 12 should be allowed.

Dependent claims 16-20 relate to transparent electrodes. These claims presumably are the basis of relying upon Komaki in the rejection of claims 12-20. However, for the reasons already advanced with respect to amended claim 1 and its dependent claims 2, 3, and 5-7, these claims 16-20 are patentable over the added reference to Komaki, regardless of the propriety of any rejection of original claim 13 or of amended claim 12.

Reconsideration and withdrawal of the rejection as to all claims now pending are earnestly solicited.

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Date: June 5, 2003
JAW/tph
Amendment or ROA - Regular (Revised 5/1/03)